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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
HAN, QI

ART UNIT	PAPER NUMBER
2654	13

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/627,375	Applicant(s) SU, HUAN-YU
	Examiner Qi Han	Art Unit 2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 28-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-11 and 28-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 04/22/2003 have been fully considered. Since applicant provides Declaration under 37 C.F.R. 1.131 dated on 04/22/2003, the applicant's arguments with respect to claims 1-11 and 28-27 are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smolik et al. (USPN 6,501,736), hereinafter referenced as Smolik, in view of Bender et al. (USPN 6,002,933) hereinafter referenced as Bender.

Regarding **claim 1**, Smolik discloses a system for increasing the call capacity of a wireless communication system, such as CDMA system (column 5, line 10) using one of three speech coding algorithms supporting variable transmission rate (column 5, lines 24-53). Smolik further discloses the variable rate is based upon the speech characteristics of the input to the speech coder (column 5, lines 54-55) and the speech coding algorithms provide a provision in which a command (herein equivalently interpreted as a network parameter or external parameter) may be issued to the speech coder, causing the distribution of different rate packets to be

modified (column 6, lines 1-4). Furthermore, Smolik discloses that a command of "Service Option Control Order" has a field of ORDQ, and the tables show the full rate reduction as a function of the ORDQ (column 6, lines 7-59) that can be used for selecting transmission rates (herein inherently equivalent to output rates for coding each of frames of the signals). This corresponds to the claimed "a flexible variable rate vocoder for use in a network to process signals, the vocoder having a plurality of output rates, the vocoder comprising: a rate determination module configured to select a target average data rate based on at least one network parameter and at least one external parameter; and a rate implementation module configured to select between the plurality of output rates for coding each of outgoing frames of the signals to achieve an average output rate for the outgoing frames", wherein the network parameter is interpreted as one of special external parameters for indicating network related status hereinafter, since both network parameter and outside control/data signal are all external parameters to the vocoder. But, Smolik fails to specifically disclose the average output rate "determined over a predetermined time period" and being "approximately equal to the target average data rate." However, the examiner contends that the concept of determining an average rate based on a predetermined time period was well known, as taught by Bender.

In the same field of endeavor, Bender discloses an inter-system soft handoff, for operating a cellular telephone system (column 3, line 18). Bender further discloses that the traffic level is determined based on link load messages received periodically by the admission control subsystem that are generated by an interface port coupled to an interconnect between the first cellular telephone system and the second cellular telephone system (column 3, lines 30-34). Furthermore, Bender teaches that to allow admission control subsystem 44 (Fig. 2) to properly

monitor the traffic transmitted through BCN (base station communication network) port 32f, BCN port 32f transmits link load messages to admission control subsystem 44, and the link load messages are transmitted periodically at a period $T_{SampleLoad}$ and indicate the average frame reception rate R_{ave} of BCN port, wherein R_{ave} is the total number of good frames received by BCN port 32f from BSC 24B during the previous period $T_{SampleLoad}$ divided by the duration of the period $T_{SampleLoad}$ (column 5, lines 52-63).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Smolik by specifically providing a mechanism of determining an average rate based on a predetermined time period, as taught by Bender, for the purpose of improving operating a cellular telephone system (Bender: column 3, line 16).

Regarding **claim 2**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that there is a associated distribution of full rate, a half rate, a quarter rate, and a eighth rate packets (column 5, lines 64-66), which is equivalent to the claimed limitation.

Regarding **claim 3**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that the system for increasing the call capacity of CDMA channels has separate criteria and control for the reverse link and for the forward link of the CDMA channels, wherein the criteria include, but are not limited to: total power (network parameter), frame error rate and quality of service (QoS) associated with specific mobile subscriber units (column 2, lines 13-24); each mobile subscriber unit may be associated with an individual level of quality of service (external parameter) (column 2, lines 24-25), a command (may have both external and network parameters) may be issued to the speech coder causing rate

modification (column 6, lines 2-4); and call blocking is detected (column 1, line 59), which suggests that the system is capable of implementing the functionality as the claimed "the at least one external parameter is indicative of one of a plurality of service classes and the at least one network parameter is indicative of an available network capacity".

Regarding **claim 4**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that each mobile subscriber unit may be associated with an individual level of quality of service, for example, a wireless communication system may offer both "premium" service and "basic" service, with "premium" service providing better perceived voice quality to the mobile subscriber unit under peak call durations, and the number of levels of QoS is not limited to two (column 2, lines 24-30), which corresponds to the claimed "the plurality of service classes comprise a premium class, a standard class and an economic classes."

Regarding **claim 5**, Smolik and Bender disclose everything claimed, as applied above (see claim 4). Smolik further discloses that in CDMA system, if call blocking is detected in the wireless communications system it may be acceptable to degrade voice quality of the communications connections within a predetermined limit in order to increase the efficiency of the available RF spectrum as measured by the call carrying capacity of this allocated RF spectrum; this is accomplished by adjusting the transmission rate of the speech coder at the mobile subscriber unit and/or the speech coder that may be located at the mobile switching center so that the call carrying capacity of the wireless communications system is therefore increased; additionally, the situation of call blocking is monitored to determine if frame error rate targets should be adjusted to further increase the call capacity (column 1, line 59 to column 2,

line 5). Furthermore, Smolik discloses that the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56). This corresponds to the claimed "the network has a plurality of users, each user of the plurality of users having a desired service class from the plurality of service classes, and wherein if the network cannot accommodate a service demand by one of the plurality of users at the desired service class of the one user, the target average data rates associated with the standard class and the economy class are reduced to accommodate the service demand."

Regarding **claim 6**, Smolik and Bender disclose everything claimed, as applied above (see claim 4). Smolik further discloses that at times when the wireless system is not experiencing peak usage, the voice quality is restored to normal levels (column 2, lines 5-7), and the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56), which corresponds to the claimed "the network has a plurality of users, each user of the plurality of users having a desired service class from the plurality of service classes, and wherein if the network can accommodate a service demand by one of the plurality of users at the desired

service class of the one user, the target average, data rates associated with the premium class, the standard class and the economy class are increased."

Regarding **claim 7**, Smolik and Bender disclose everything claimed, as applied above (see claim 2). Smolik discloses three variable rate speech coding algorithms (column 5, lines 25-59) as stated above (see claims 1 and 2), and further discloses various procedures, processes and table structures relating to the rate deduction (column 5, line 60 through column 10, line 35), so that the system inherently includes a mechanism that is capable of implementing or equivalent to the functionality as the claimed "the rate implementation module comprises a switch, a full rate module, a half rate module, a quarter rate module, an eighth rate module, and a multiplexor, and wherein the switch selects between. the nodules for coding each of the outgoing frames, and the multiplexor receives the outgoing frames from each of the modules and serially outputs the outgoing frames on a single line."

3. Claims 8-11 and 28-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smolik in view of Bender, and further in view of Tiedemann et al. (USPN 5,914,950) hereinafter referenced as Tiedemann.

Regarding **claim 8**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that the system for increasing the call capacity of CDMA channels has separate criteria and control for the reverse link and for the forward link of the CDMA channels, wherein the criteria include, but are not limited to: total power (network parameter), frame error rate and quality of service (QoS) associated with specific mobile subscriber units (column 2, lines 13-24); each mobile subscriber unit may be associated with an

individual level of quality of service (external parameter) column 2, lines 24-25), a command (may have both external and network parameters) may be issue to the speech coder causing rate modification (column 6, lines 2-4), which corresponds to the claimed "the at least one network parameter is indicative of an available network capacity, and the at least one external parameter." But, Smolik and Bender fail to expressly disclose that "the at least one external parameter is indicative of the subject matter of the signals." However, the examiner contends that the concept of providing information of a subject matter of signals was well known, as taught by Tiedemann.

Tiedemann further disclose that the maximum scheduled transmission rate is sent to the remote station and the remote station partitions the data into data frames and transmits the data frames over the reverse link at or below the maximum scheduled transmission rate (column 5, lines 2-6). Furthermore, Tiedemann discloses that the available capacity (herein equivalent to available network capacity) is allocated to the highest priority user first and the lowest priority user last (column 5, lines 26-27). In addition, Tiedemann discloses that the reverse link transmissions can be classified into two classes (herein equivalent to categories), unscheduled task with intolerance of additional delay such as voice communication and scheduled task with tolerance additional delay such as data communication (column 8, lines 32-42). In fact, Smolik also suggests that the system includes data services (column 5, lines19-21).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Smolik and Bender by specifically providing information of subject matter class for external parameter, as taught by Tiedemann, for the purpose of providing more widely marketable feature for the system.

Regarding **claim 9**, Smolik, Bender and Tiedemann disclose everything claimed, as applied above (see claim 8). The rejection for claim 8, as state above, satisfies the claimed "the subject matter can be one of voice category, data category, music category, and image video category", herein the data is interpreted as non-voice data, such as text, music and image, because vocoder itself does not encode/decode this type of data.

Regarding **claim 10**, Smolik, Bender and Tiedemann disclose everything claimed, as applied above (see claim 9). Smolik further discloses that in CDMA system, if call blocking is detected in the wireless communications system it may be acceptable to degrade voice quality of the communications connections within a predetermined limit in order to increase the efficiency of the available RF spectrum as measured by the call carrying capacity of this allocated RF spectrum; this is accomplished by adjusting the transmission rate of the speech coder at the mobile subscriber unit and/or the speech coder that may be located at the mobile switching center so that the call carrying capacity of the wireless communications system is therefore increased; additionally, the situation of call blocking is monitored to determine if frame error rate targets should be adjusted to further increase the call capacity (column 1, line 59 to column 2, line 5). Furthermore, Smolik discloses that the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56). This corresponds to the claimed "wherein the network has a plurality of users, if the network cannot accommodate a service demand by one of the plurality

of users at the target average date rate, the target average data rates associated with one or mote categories of the subject matter are reduced to accommodate the service demand."

Regarding **claim 11**, Smolik, Bender and Tiedemann disclose everything claimed, as applied above (see claim 9). Smolik further discloses that at times when the wireless system is not experiencing peak usage, the voice quality is restored to normal levels (column 2, lines 5-7), and the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56), which suggest that when there is available capacity the system is capable of increasing service level for all users. This corresponds to the claimed "wherein the network has a plurality of users, if the network can accommodate a service demand by one of the plurality of users at the target average data rate, the target average data rates associated with one or more categories of the subject matter are increased."

Regarding **claims 28-37**, they disclose a method for use by a flexible variable rate vocoder, which corresponds to the apparatus claims 1-6 and 8-11, respectively. The method is obvious in that it simply provides functionality for the structure found in claims 1-6 and 8-11, respectively.

Conclusion

4. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks, Washington D.C. 20231
or faxed to:
(703)-872-9314
Hand-delivered responses should be brought to:
Crystal Park II, 2121 Crystal Drive, Arlington. VA. Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (703) 305-5631. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. and Friday from 8:00 a.m. to 12:00 a.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached on (703) 305-4379.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

QH/qh
June 16, 2003

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 04/22/2003 have been fully considered. Since applicant provides Declaration under 37 C.F.R. 1.131 dated on 04/22/2003, the applicant's arguments with respect to claims 1-11 and 28-27 are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smolik et al. (USPN 6,501,736), hereinafter referenced as Smolik, in view of Bender et al. (USPN 6,002,933) hereinafter referenced as Bender.

Regarding **claim 1**, Smolik discloses a system for increasing the call capacity of a wireless communication system, such as CDMA system (column 5, line 10) using one of three speech coding algorithms supporting variable transmission rate (column 5, lines 24-53). Smolik further discloses the variable rate is based upon the speech characteristics of the input to the speech coder (column 5, lines 54-55) and the speech coding algorithms provide a provision in which a command (herein equivalently interpreted as a network parameter or external parameter) may be issued to the speech coder, causing the distribution of different rate packets to be

modified (column 6, lines 1-4). Furthermore, Smolik discloses that a command of "Service Option Control Order" has a field of ORDQ, and the tables show the full rate reduction as a function of the ORDQ (column 6, lines 7-59) that can be used for selecting transmission rates (herein inherently equivalent to output rates for coding each of frames of the signals). This corresponds to the claimed "a flexible variable rate vocoder for use in a network to process signals, the vocoder having a plurality of output rates, the vocoder comprising: a rate determination module configured to select a target average data rate based on at least one network parameter and at least one external parameter; and a rate implementation module configured to select between the plurality of output rates for coding each of outgoing frames of the signals to achieve an average output rate for the outgoing frames", wherein the network parameter is interpreted as one of special external parameters for indicating network related status hereinafter, since both network parameter and outside control/data signal are all external parameters to the vocoder. But, Smolik fails to specifically disclose the average output rate "determined over a predetermined time period" and being "approximately equal to the target average data rate." However, the examiner contends that the concept of determining an average rate based on a predetermined time period was well known, as taught by Bender.

In the same field of endeavor, Bender discloses an inter-system soft handoff, for operating a cellular telephone system (column 3, line 18). Bender further discloses that the traffic level is determined based on link load messages received periodically by the admission control subsystem that are generated by an interface port coupled to an interconnect between the first cellular telephone system and the second cellular telephone system (column 3, lines 30-34). Furthermore, Bender teaches that to allow admission control subsystem 44 (Fig. 2) to properly

monitor the traffic transmitted through BCN (base station communication network) port 32f, BCN port 32f transmits link load messages to admission control subsystem 44, and the link load messages are transmitted periodically at a period $T_{SampleLoad}$ and indicate the average frame reception rate R_{ave} of BCN port, wherein R_{ave} is the total number of good frames received by BCN port 32f from BSC 24B during the previous period $T_{SampleLoad}$ divided by the duration of the period $T_{SampleLoad}$ (column 5, lines 52-63).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Smolik by specifically providing a mechanism of determining an average rate based on a predetermined time period, as taught by Bender, for the purpose of improving operating a cellular telephone system (Bender: column 3, line 16).

Regarding **claim 2**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that there is a associated distribution of full rate, a half rate, a quarter rate, and a eighth rate packets (column 5, lines 64-66), which is equivalent to the claimed limitation.

Regarding **claim 3**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that the system for increasing the call capacity of CDMA channels has separate criteria and control for the reverse link and for the forward link of the CDMA channels, wherein the criteria include, but are not limited to: total power (network parameter), frame error rate and quality of service (QoS) associated with specific mobile subscriber units (column 2, lines 13-24); each mobile subscriber unit may be associated with an individual level of quality of service (external parameter) (column 2, lines 24-25), a command (may have both external and network parameters) may be issued to the speech coder causing rate

modification (column 6, lines 2-4); and call blocking is detected (column 1, line 59), which suggests that the system is capable of implementing the functionality as the claimed "the at least one external parameter is indicative of one of a plurality of service classes and the at least one network parameter is indicative of an available network capacity".

Regarding **claim 4**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that each mobile subscriber unit may be associated with an individual level of quality of service, for example, a wireless communication system may offer both "premium" service and "basic" service, with "premium" service providing better perceived voice quality to the mobile subscriber unit under peak call durations, and the number of levels of QoS is not limited to two (column 2, lines 24-30), which corresponds to the claimed "the plurality of service classes comprise a premium class, a standard class and an economic classes."

Regarding **claim 5**, Smolik and Bender disclose everything claimed, as applied above (see claim 4). Smolik further discloses that in CDMA system, if call blocking is detected in the wireless communications system it may be acceptable to degrade voice quality of the communications connections within a predetermined limit in order to increase the efficiency of the available RF spectrum as measured by the call carrying capacity of this allocated RF spectrum; this is accomplished by adjusting the transmission rate of the speech coder at the mobile subscriber unit and/or the speech coder that may be located at the mobile switching center so that the call carrying capacity of the wireless communications system is therefore increased; additionally, the situation of call blocking is monitored to determine if frame error rate targets should be adjusted to further increase the call capacity (column 1, line 59 to column 2,

line 5). Furthermore, Smolik discloses that the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56). This corresponds to the claimed "the network has a plurality of users, each user of the plurality of users having a desired service class from the plurality of service classes, and wherein if the network cannot accommodate a service demand by one of the plurality of users at the desired service class of the one user, the target average data rates associated with the standard class and the economy class are reduced to accommodate the service demand."

Regarding **claim 6**, Smolik and Bender disclose everything claimed, as applied above (see claim 4). Smolik further discloses that at times when the wireless system is not experiencing peak usage, the voice quality is restored to normal levels (column 2, lines 5-7), and the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56), which corresponds to the claimed "the network has a plurality of users, each user of the plurality of users having a desired service class from the plurality of service classes, and wherein if the network can accommodate a service demand by one of the plurality of users at the desired

service class of the one user, the target average, data rates associated with the premium class, the standard class and the economy class are increased."

Regarding **claim 7**, Smolik and Bender disclose everything claimed, as applied above (see claim 2). Smolik discloses three variable rate speech coding algorithms (column 5, lines 25-59) as stated above (see claims 1 and 2), and further discloses various procedures, processes and table structures relating to the rate deduction (column 5, line 60 through column 10, line 35), so that the system inherently includes a mechanism that is capable of implementing or equivalent to the functionality as the claimed "the rate implementation module comprises a switch, a full rate module, a half rate module, a quarter rate module, an eighth rate module, and a multiplexor, and wherein the switch selects between. the nodules for coding each of the outgoing frames, and the multiplexor receives the outgoing frames from each of the modules and serially outputs the outgoing frames on a single line."

3. Claims 8-11 and 28-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smolik in view of Bender, and further in view of Tiedemann et al. (USPN 5,914,950) hereinafter referenced as Tiedemann.

Regarding **claim 8**, Smolik and Bender disclose everything claimed, as applied above (see claim 1). Smolik further discloses that the system for increasing the call capacity of CDMA channels has separate criteria and control for the reverse link and for the forward link of the CDMA channels, wherein the criteria include, but are not limited to: total power (network parameter), frame error rate and quality of service (QoS) associated with specific mobile subscriber units (column 2, lines 13-24); each mobile subscriber unit may be associated with an

individual level of quality of service (external parameter) column 2, lines 24-25), a command (may have both external and network parameters) may be issue to the speech coder causing rate modification (column 6, lines 2-4), which corresponds to the claimed "the at least one network parameter is indicative of an available network capacity, and the at least one external parameter." But, Smolik and Bender fail to expressly disclose that "the at least one external parameter is indicative of the subject matter of the signals." However, the examiner contends that the concept of providing information of a subject matter of signals was well known, as taught by Tiedemann.

Tiedemann further disclose that the maximum scheduled transmission rate is sent to the remote station and the remote station partitions the data into data frames and transmits the data frames over the reverse link at or below the maximum scheduled transmission rate (column 5, lines 2-6). Furthermore, Tiedemann discloses that the available capacity (herein equivalent to available network capacity) is allocated to the highest priority user first and the lowest priority user last (column 5, lines 26-27). In addition, Tiedemann discloses that the reverse link transmissions can be classified into two classes (herein equivalent to categories), unscheduled task with intolerance of additional delay such as voice communication and scheduled task with tolerance additional delay such as data communication (column 8, lines 32-42). In fact, Smolik also suggests that the system includes data services (column 5, lines19-21).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to modify Smolik and Bender by specifically providing information of subject matter class for external parameter, as taught by Tiedemann, for the purpose of providing more widely marketable feature for the system.

Regarding **claim 9**, Smolik, Bender and Tiedemann disclose everything claimed, as applied above (see claim 8). The rejection for claim 8, as state above, satisfies the claimed "the subject matter can be one of voice category, data category, music category, and image video category", herein the data is interpreted as non-voice data, such as text, music and image, because vocoder itself does not encode/decode this type of data.

Regarding **claim 10**, Smolik, Bender and Tiedemann disclose everything claimed, as applied above (see claim 9). Smolik further discloses that in CDMA system, if call blocking is detected in the wireless communications system it may be acceptable to degrade voice quality of the communications connections within a predetermined limit in order to increase the efficiency of the available RF spectrum as measured by the call carrying capacity of this allocated RF spectrum; this is accomplished by adjusting the transmission rate of the speech coder at the mobile subscriber unit and/or the speech coder that may be located at the mobile switching center so that the call carrying capacity of the wireless communications system is therefore increased; additionally, the situation of call blocking is monitored to determine if frame error rate targets should be adjusted to further increase the call capacity (column 1, line 59 to column 2, line 5). Furthermore, Smolik discloses that the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56). This corresponds to the claimed "wherein the network has a plurality of users, if the network cannot accommodate a service demand by one of the plurality

of users at the target average date rate, the target average data rates associated with one or mote categories of the subject matter are reduced to accommodate the service demand."

Regarding **claim 11**, Smolik, Bender and Tiedemann disclose everything claimed, as applied above (see claim 9). Smolik further discloses that at times when the wireless system is not experiencing peak usage, the voice quality is restored to normal levels (column 2, lines 5-7), and the service provider can choose a maximum level of QoS that is subjected to a service degradation as a result of the call capacity enhancement process, thus only those mobile subscriber units having a level of QoS less or equal to the maximum level of QoS will be affected by the call capacity enhancement process, and of course, the maximum level of QoS can be set so that all mobile subscriber units are affected by the process (column 9, lines 47-56), which suggest that when there is available capacity the system is capable of increasing service level for all users. This corresponds to the claimed "wherein the network has a plurality of users, if the network can accommodate a service demand by one of the plurality of users at the target average data rate, the target average data rates associated with one or more categories of the subject matter are increased."

Regarding **claims 28-37**, they disclose a method for use by a flexible variable rate vocoder, which corresponds to the apparatus claims 1-6 and 8-11, respectively. The method is obvious in that it simply provides functionality for the structure found in claims 1-6 and 8-11, respectively.

Conclusion

4. Any response to this office action should be mailed to:

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (703) 305-5631. The examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:30 p.m. and Friday from 8:00 a.m. to 12:00 a.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached on (703) 305-4379.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

QH/qh
June 16, 2003

Marsha D Banks-Harold
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